SCC Quick Start Guide

This document explains how to install and configure National Instruments Signal Conditioning Components (SCC) modules with NI-DAQmx. SCC modules work with NI M Series, E Series, and B Series DAQ devices. This document assumes you have already installed, configured, and tested your NI application and driver software and the data acquisition (DAQ) device you will connect to the SC-2345/2350 carrier. If you have not done so, refer to the *DAQ Getting Started Guide* included with the DAQ device, available on the NI-DAQ CD, and from `ni.com/manuals` before continuing.

Throughout this document, abbreviations containing *X* or *XX* are used to refer to families of related device model numbers.

SCC-AI*XX*—refers to the SCC-AI01, SCC-AI02, SCC-AI03, SCC-AI04, SCC-AI05, SCC-AI06, SCC-AI07, SCC-AI13, and SCC-AI14.

SCC-LP*XX*—refers to the SCC-LP01, SCC-LP02, SCC-LP03, and SCC-LP04.

SCC-SG*XX*—refers to the SCC-SG01, SCC-SG02, SCC-SG03, SCC-SG04, and SCC-SG24.

SCC-TC0*X*—refers to the SCC-TC01 and SCC-TC02.

SCC-*XX*—refers to any SCC module.

Step 1. Unpacking the Carrier and Modules

Remove the module from the package and inspect the module for loose components or any sign of damage. Notify NI if the module appears damaged in any way. Do *not* install a damaged module into the carrier.

For safety and compliance information, refer to the device documentation packaged with the device, at `ni.com/manuals`, or on NI-DAQmx CD that contains the device documentation.

The following symbols may be on the device:

This symbol denotes a caution, which advises you of precautions to take to avoid injury, data loss, or a system crash. When this symbol is marked on the product, refer to the *Read Me First: Safety and Radio-Frequency Interference* document, shipped with the product, for precautions to take.

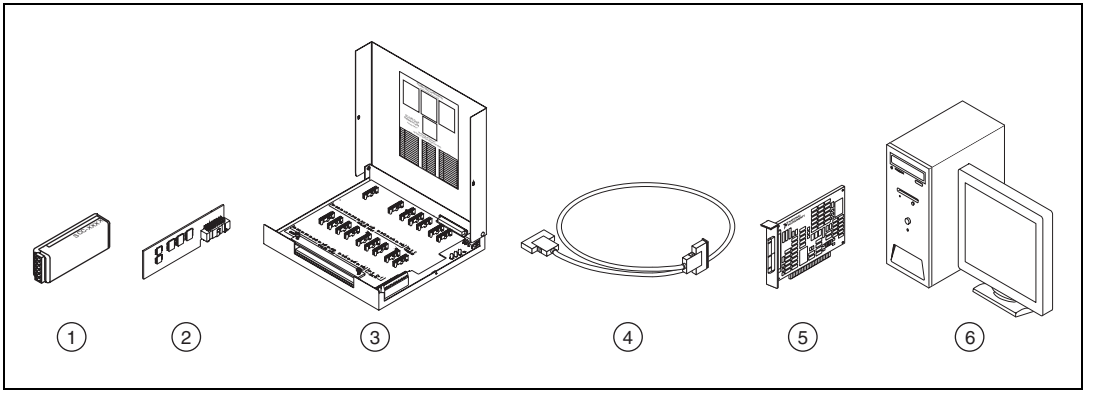
When this symbol is marked on a product, it denotes a warning advising you to take precautions to avoid electrical shock.

When this symbol is marked on a product, it denotes a component that may be hot. Touching a component may result in bodily injury.

NATIONAL INSTRUMENTS

Step 2. Verifying the Components

Verify that you have the following SCC system components.



1	SCC Module	3	SCC Carrier	5	DAQ Device
2	Power Module	4	Shielded Cable	6	Personal Computer

In addition, you need the following items:

- ❑ Hardware and documentation
  - 68-pin DAQ device and documentation
  - 68-pin shielded cable
  - SC-2345/2350 carrier and *SC-2345/2350 Carrier User Manual*
  - One or more SCC modules and user guide
- ❑ Software and documentation
  - NI-DAQ 7.*2* or later software and documentation
  - At least one of the following software packages and documentation:
    - LabVIEW
    - LabWindows™/CVI™
    - LabVIEW SignalExpress
    - Measurement Studio
    - Visual C++
    - Visual Basic
- ❑ Tools
  - 1/8 in. flathead screwdriver
  - Numbers 1 and 2 Phillips screwdrivers
  - Wire insulation strippers

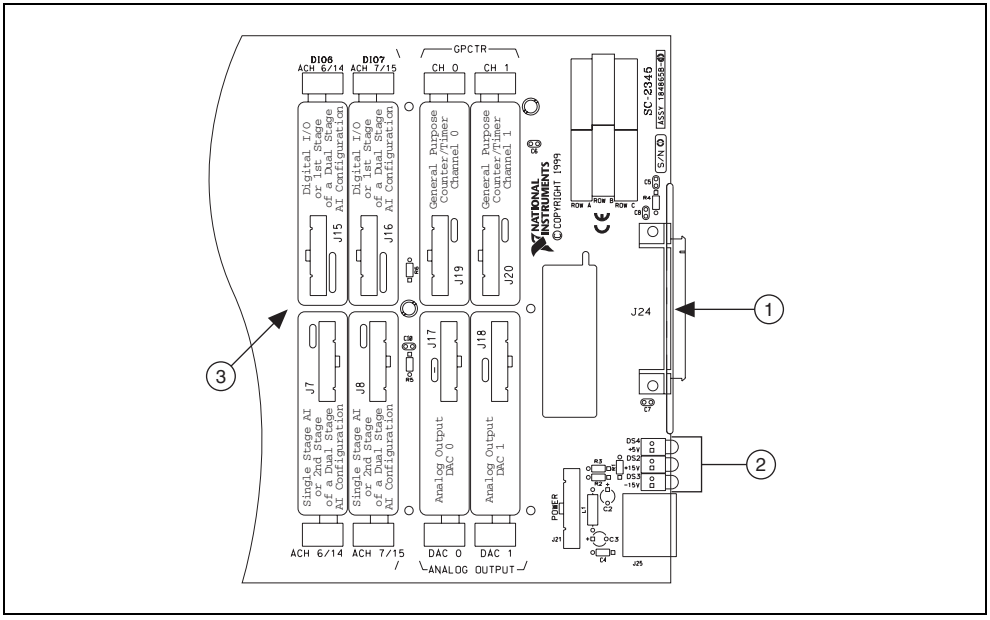
To install NI-DAQmx, refer to the *DAQ Getting Started Guide*. To install the SC-2345/2350 carrier, refer to the *SC-2345/2350 Carrier User Manual*. All NI documents are available at `ni.com/manuals`.

Step 3. Cabling the SC-2345/2350 Carrier to the DAQ Device

Caution Refer to the *Read Me First: Safety and Radio-Frequency Interference* document before removing equipment covers or connecting or disconnecting any signal wires. Follow proper ESD precautions to ensure you are grounded before installing the hardware.

Verify that the DAQ device is installed in the computer. If the DAQ device is not installed, refer to the *DAQ Getting Started Guide* for installation instructions.

Connect the SC-2345/2350 carrier to the DAQ device with a 68-pin shielded cable. If you are using an M Series DAQ device with two connectors, connect the cable to connector 0 or 1. Use connector J24, shown in Figure 1, on the SC-2345/2350 carrier.

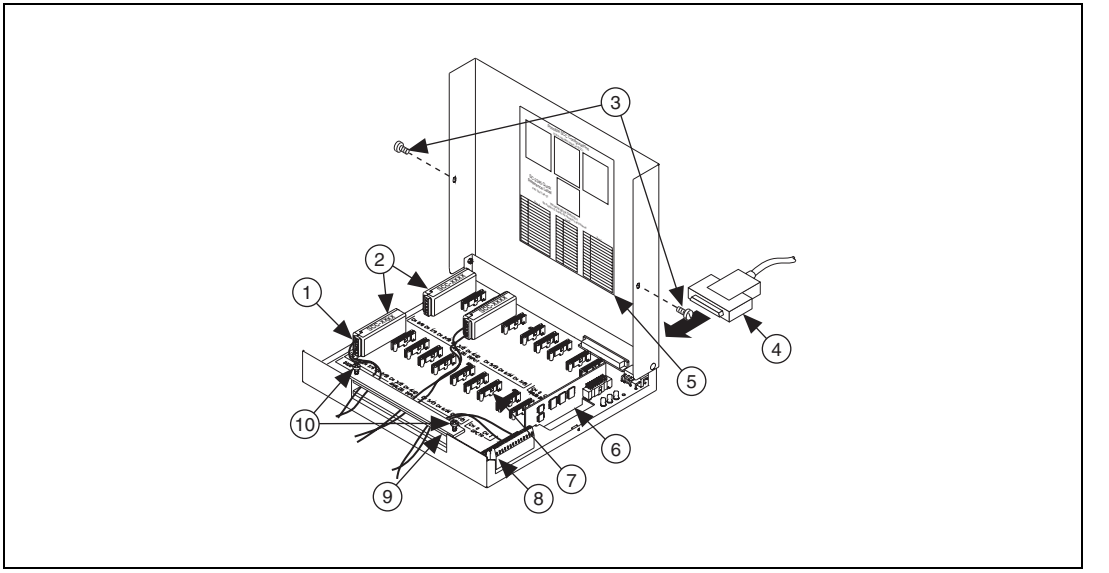


1	Connector J24	2	Power LEDs	3	SC-2345 Carrier

Figure 1. Connector J24 Location

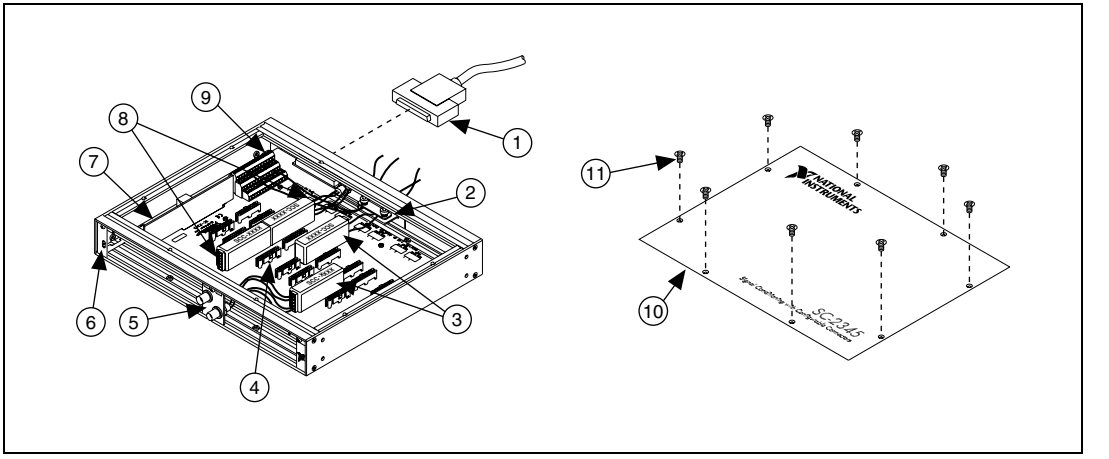
The chassis ground terminal on the SC-2345/2350 carrier and the electromagnetic interference (EMI) gasket attached to the strain relief of the SC-2345 connector block are used to ground a floating source (1 mA maximum). Do *not* use these terminals as safety earth grounds. For more information about the SC-2345/2350 carrier, refer to the *SC-2345/2350 Carrier User Manual*.

Figure 2 shows the SC-2345 carrier with the signal wires connected. Figures 3 and 4 show the two types of cabling found on the SC-2345 with configurable connectors.



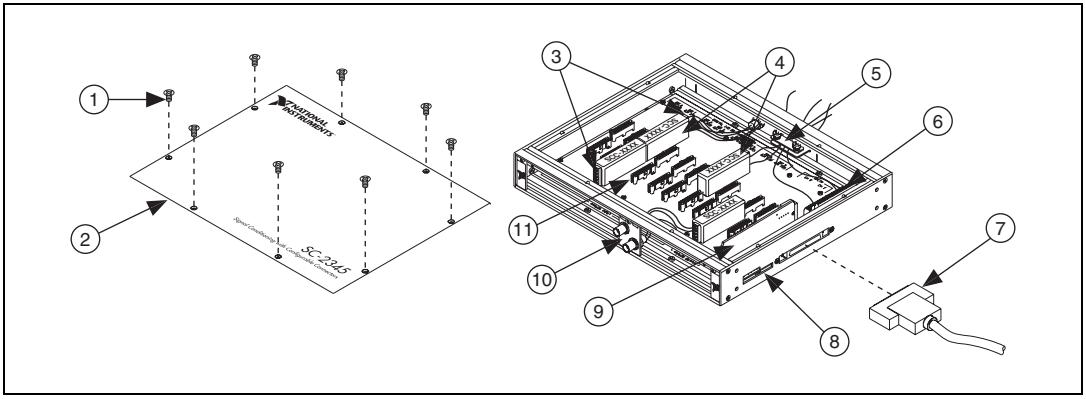
1	Screw Terminals	5	Quick Reference Label	8	Screw Terminal Block
2	SCC Modules	6	SCC-PWR*XX*	9	Top Strain-Relief Bar
3	Cover Screws	7	SCC Connector Block Socket	10	Top Strain-Relief Screws
4	68-Pin Shielded Cable				

Figure 2. SC-2345 Carrier Installation Diagram



1	68-Pin Shielded Cable	5	BNC Panelette	9	Screw Terminal Block
2	Strain-Relief Panelette	6	Power LEDs	10	Top Cover
3	SCC Modules	7	SCC-PWR*XX*	11	Cover Screws
4	SCC Connector Block Socket	8	Screw Terminals		

Figure 3. SC-2345 Carrier with Configurable Connectors (Rear Cabled) Installation Diagram



1	Cover Screws	5	Strain-Relief Panelette	9	SCC-PWR*XX*
2	Top Cover	6	Screw Terminal Block	10	BNC Panelette
3	Screw Terminals	7	68-Pin Shielded Cable	11	SCC Connector Block Socket
4	SCC Modules	8	Power LEDs		

Figure 4. SC-2345 Carrier with Configurable Connectors (Side Cabled) Installation Diagram

Step 4. Setting Up the SC-2345/SC-2350 Carrier

The following section describes how to set up features common to both the SC-2345 and the SC-2350 carriers.

Procedure 1: Installing the Connectors and Panelettes

If you have selected an SC carrier with configurable connectors, install the connector and interface panelettes. Some panelettes occupy more than one panelette slot. Table 1 lists the panelette specifications.

Table 1. Panelette Specifications

Panelette	Description	Connectors/Units per Panelette	Slot Width
Mini-thermocouple jack	J- or K-type	2	1
	Uncompensated	2	1
Thermocouple jack	J- or K-type	1	1
	Uncompensated	1	1
BNC	BNC connector	2	1
SMB	SMB connector	4	1
Banana jack	Banana jack	2	1
LEMO (B-Series)	2-pin female	2	1
	4-, 6-pin female	1	1
MIL-Spec	2-, 4-, 6-pin female	1	1

Table 1. Panelette Specifications (Continued)

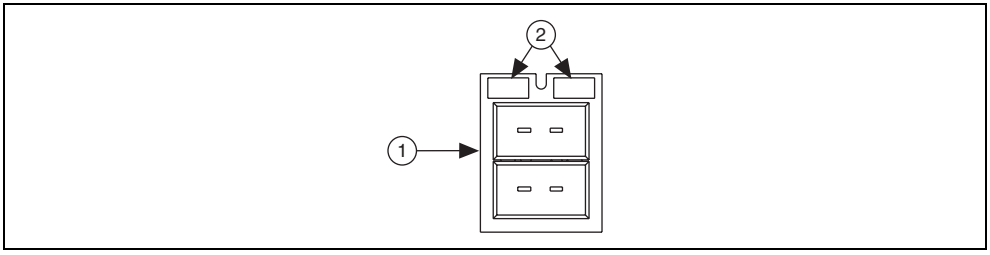
Panelette	Description	Connectors/Units per Panelette	Slot Width
9-pin D-SUB	Single (male)	1	2
	Single (female)	1	2
	Dual (male)	2	3
	Dual (female)	2	3
Momentary switch	On – off	2	1
Toggle switch	On – off – on	2	1
Rocker switch	On – off – on	1	1
LED	Red, green, yellow, and orange LEDs	4	1
Potentiometer	1 turn, 10	1	1
Strain relief	Small strain relief	1	2
Blank	Filler panel	—	—

You can install a blank panelette into any unused panelette opening. Complete the following steps to install the I/O panelettes:

1. Remove the blank panel before installing any I/O panelettes on the rear of the SC-2345/2350 with configurable connectors.
2. Place the lower edge of the I/O panelette in the groove at the bottom of the enclosure opening.
3. Tilt the panelette top back into the enclosure.
4. Secure the panelette with either one, two, or three (depending on the type of I/O panelette) M2.5 × 6 panhead screws that are included with the panelette.
5. Connect the lead wires from the panelette to the screw terminals of the SCC modules or to the 42-pin screw terminal block inside the SC-2345/2350 carrier.

Procedure 2: Applying I/O Panelette Labels

The SC-2345 with Configurable Connectors and the SC-2350 are shipped with a sheet of labels to apply to the I/O panelettes as shown in Figure 5. The label sheet has both printed labels and blank labels you can customize. You can use two labels on single-width I/O panelettes and three or more labels on wider panelettes.



1 I/O Panelette 2 Labels

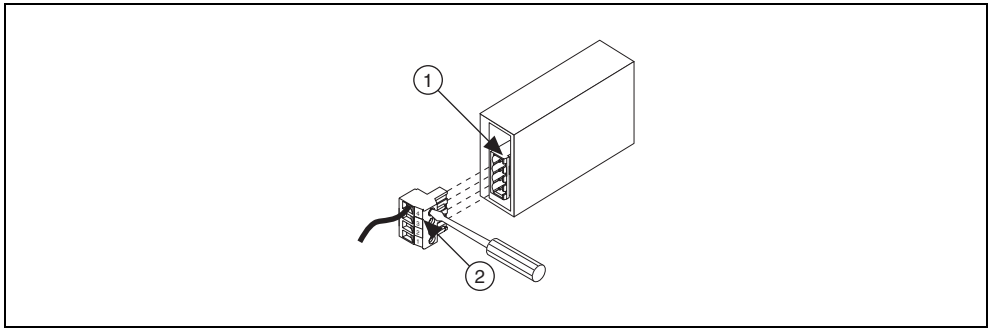
Figure 5. Installing I/O Panelette Labels

Step 5. Connecting the Signals

Caution Always refer to the specifications in the SCC-*XX* module user guide *before* connecting signals. Exceeding specified module ratings can create a shock or fire hazard and can damage any or all of the devices connected to the module.

Refer to the SCC module user guide to confirm signal names. Complete the following steps:

1. Remove power from the signal lines.
2. Strip 7 mm (0.25 in.) of insulation from the ends of the signal wires.
3. Insert the wires into the screw terminals. The SCC-*XX* module has a fixed screw-terminal receptacle and a removable screw-terminal block, as shown in Figure 6.



1	SCC Screw-Terminal Receptacle	2	Removable Screw-Terminal Block

Figure 6. SCC-*XX* Two-Part Screw-Terminal System

4. Tighten the screws to 0.5 to 0.6 N · m (4.4 to 5.3 lb · in.) of torque.
5. Make sure the strain-relief bar is installed as shown in Figures 3, 4, and 5. If necessary, reinstall and tighten the strain-relief screws.
6. Close or replace the top cover.
7. Reinsert and tighten the cover screws to ensure proper shielding.

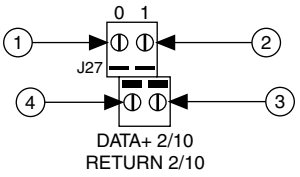
For complete signal-connection information, refer to the SCC-*XX* module user guide. For more information about using the SC-2345, refer to the *SC-2345/2350 Carrier User Manual*.

For information about sensors, refer to `ni.com/sensors` or *Common Sensors* in the *Measurement Fundamentals* section of the *NI-DAQmx Help*, which you can access from **Start»All Programs» National Instruments»NI-DAQ»NI-DAQmx Help**. For information about IEEE 1451.4 TEDS smart sensors, refer to `ni.com/teds`.

SC-2350: Connecting TEDS Sensors

If you are using an IEEE P1451.4 Transducer Electronic Data Sheet-compatible smart sensor, complete the following steps to connect the TEDS DATA and RETURN signals. Refer to Figure 7 when completing the following steps:

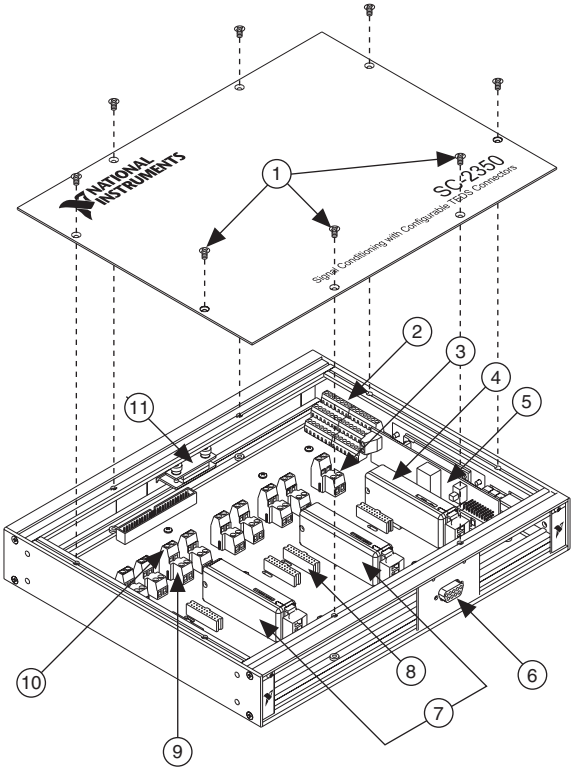
1. Connect the DATA signal to the `DATA+` screw terminal on the TEDS screw terminal.
2. Connect the RETURN signal to the `RETURN` screw terminal on the TEDS screw terminal.



1	DATA+ 2	2	DATA+ 10	3	RETURN 10	4	RETURN 2

Figure 7. TEDS DATA+ and RETURN Connections

Figure 8 shows the SC-2350 carrier with the SCC modules installed.



1 Cover Screws
2 Screw Terminal Block
3 TEDS Screw Terminal
4 SCC Modules—Analog Output
5 SCC-PWR*XX*
6 D-SUB Panelette
7 SCC Modules—Analog Input
8 Connector Block Sockets
9 TEDS Screw Terminal: RETURN Screw Terminal
10 TEDS Screw Terminal: DATA+ Screw Terminal
11 Strain-Relief Panelette

Figure 8. SC-2350 Carrier Installation Diagram

Connecting Digital Signals (Optional)

The SC-2345/2350 has a 42-position, triple-row screw-terminal block for connecting to DAQ device digital signals. Depending on the DAQ device you are using, you can connect the terminal block to various digital signals. Refer to Figure 9 for signals of E, B, or M Series Connector 0. The *SC-2345 Quick Reference Label* identifies the location of each signal on the terminal rows A to C. The terminal label numbers correspond to the pin number location of each signal on the 68-pin DAQ device connector. Refer to the DAQ device documentation for more information about this connector.

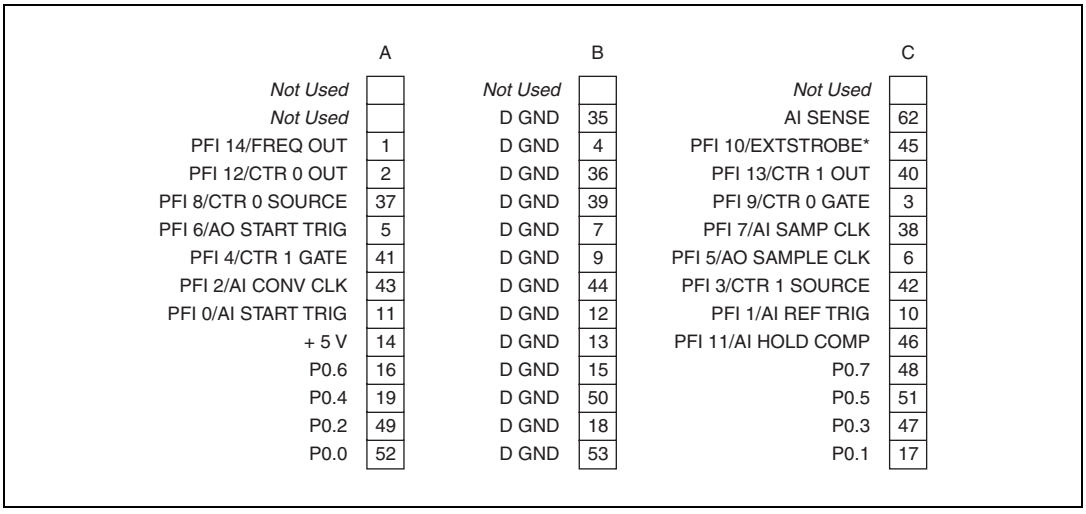


Figure 9. Terminal Block I/O Connector Pin Assignments of E, B, and M Series Devices

Note Refer to the *M Series User Manual* for pin assignments of M Series devices.

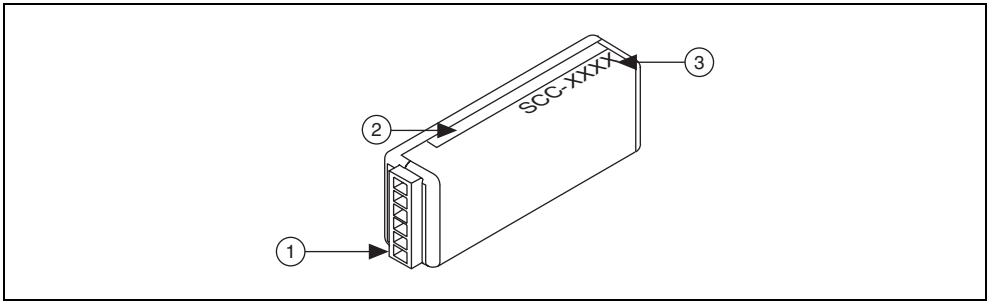
- SC-2345 connector block (The following does not apply to the SC-2345 with configurable connectors or to the SC-2350.)

A metallized nylon knit EMI gasket is attached to the strain-relief bars of the SC-2345 connector block. Using shielded cables to connect the signals allows you to ground the shielded signal cables. Stripping the insulation away from the shield of the cables forms a chassis ground connection at the strain-relief bar. To avoid adding noise to the signal, ground the cable shield only at one end. For complete signal connection information, refer to the SCC-*XX* module user guide. For more information about using the SC-2345, refer to the *SC-2345/2350 Carrier User Manual*.

SCC Module Installation Considerations

SCC modules are required for connecting to the analog inputs or analog outputs of the DAQ device. You do not need to use SCC modules to connect to the CTR and P0.*X* signals of the DAQ device, which are accessible from the SC-2345 carrier. Refer to the *SC-2345/2350 Carrier User Manual* for more information.

Each SCC module has a lengthwise color stripe label on the top, as illustrated in Figure 10, that indicates the module type and function classification of the module and displays a corresponding icon.



1	SCC Screw-Terminal Receptacle	2	Label Color Stripe	3	SCC Module Name

Figure 10. SCC Module

For more information about SCC module types, accompanying icons, label color, and measurement types, refer to Table 2.

Table 2. SCC Modules: Icon, Label Color, and Measurement Type

SCC Module	Icon	Label Color	Measurement Type
SCC-ACC01	ACC INPUT	Blue	Analog Input
SCC-AI*XX*		Blue	Analog Input
SCC-A10	÷10	Blue	Analog Input
SCC-CI20	I_{IN} V_{OUT}	Blue	Analog Input
SCC-FV01	0–100Hz	Blue	Analog Input
SCC-LP*XX*	Hz	Blue	Analog Input

Table 2. SCC Modules: Icon, Label Color, and Measurement Type (Continued)

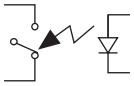
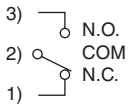
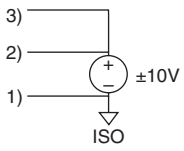
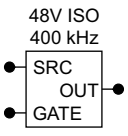
SCC Module	Icon	Label Color	Measurement Type
SCC-RTD01		Blue	Analog Input
SCC-SG	Refer to the *SCC-SG Series Strain Gage Modules User Guide*.	Blue	Analog Input
SCC-TC0*X*		Blue	Analog Input
SCC-FT01		N/A	Analog Input, Analog Output, Digital, GPCTR
SCC-DI01		Green	Digital
SCC-DO01		Green	Digital
SCC-RLY01		Green	Digital
SCC-CO20		Red	Analog Output

Table 2. SCC Modules: Icon, Label Color, and Measurement Type (Continued)

SCC Module	Icon	Label Color	Measurement Type
SCC-AO10		Red	Analog Output
SCC-CTR01		Yellow	General Purpose Counter/Timer

The SC-2345 carrier and the SC-2350 carrier each have different functionality and SCC module configurations. The following sections cover carrier-specific information relative to SCC module installation.

SC-2345 Carrier Considerations

The following section provides information specific to the SC-2345 carrier.

Quick Reference Label

Affix the Quick Reference Label to the inside cover of the SC-2345. This label, shown in Figure 11, shows the possible configurations of SCC modules. The Quick Reference Label also lists the location of each signal on the SC-2345 carrier modules. The numbers on the label correspond to the terminal numbers on the connector of the DAQ device.

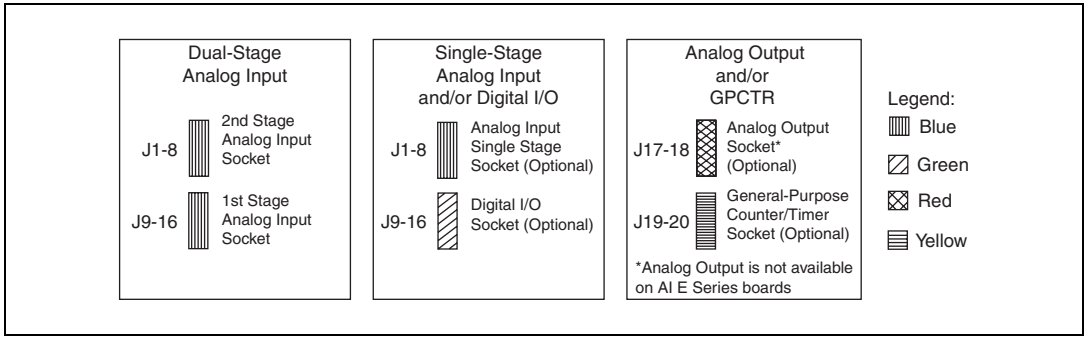
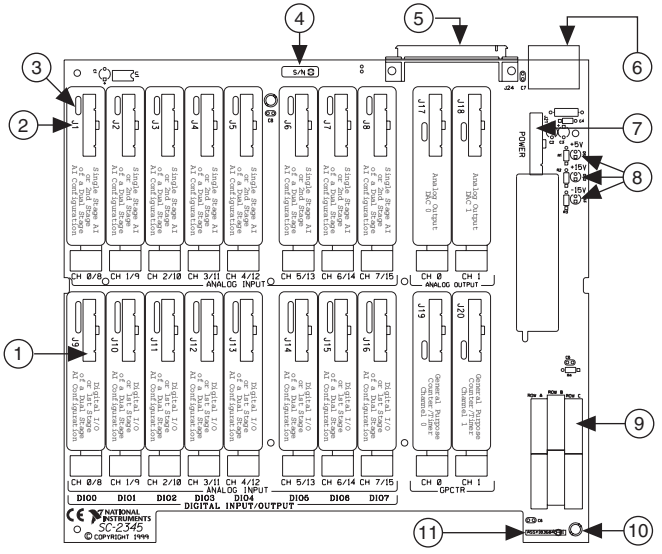


Figure 11. SCC Module Configurations by Socket, Function Classification, and Color Code

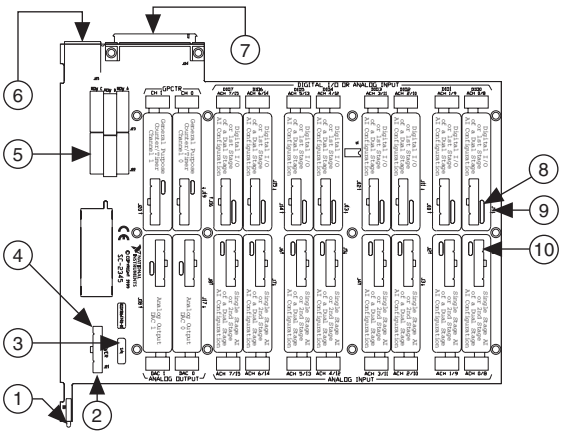
SC-2345 Carrier Diagrams

Figures 12, 13, and 14 show diagrams of the three types of SC-2345 carriers.



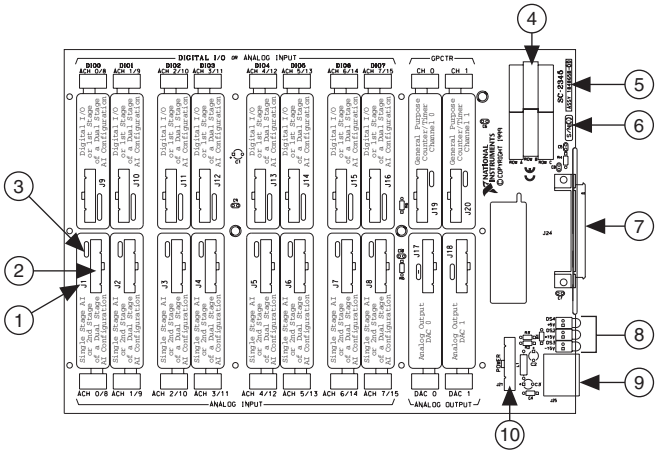
1	SCC Socket	5	J24	9	Screw-Terminal Block
2	SCC Socket Reference Designator	6	J25	10	Grounding Terminal Lug
3	SCC Key Slot	7	J21	11	Assembly Number
4	Serial Number	8	Power LEDs		

Figure 12. SC-2345 Carrier Diagram



1	Power LEDs	5	Screw-Terminal Block	8	SCC Key Slot
2	J21	6	J25	9	SCC Socket Reference Designator
3	Serial Number	7	J24	10	SCC Socket
4	Assembly Number				

Figure 13. SC-2345 with Configurable Connectors (Rear Cabled) Carrier Diagram



1	SCC Socket Reference Designator	5	Assembly Number	8	Power LEDs
2	SCC Socket	6	Serial Number	9	J25
3	SCC Key Slot	7	J24	10	J21
4	Screw-Terminal Block				

Figure 14. SC-2345 with Configurable Connectors (Side Cabled) Carrier Diagram

SC-2350 Carrier Considerations

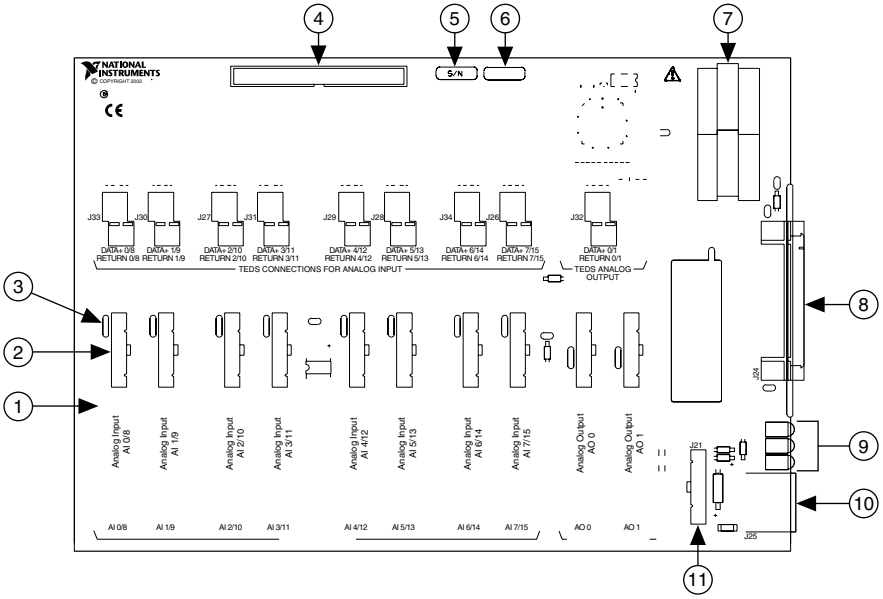
The SC-2350 has integrated software support for Transducer Electronic Data Sheet (TEDS) sensors. For more information about using TEDS with SCC modules, refer to the *SC-2345/2350 Carrier User Manual*.

The SC-2350 carrier has 16 channels of analog input sockets, J1 to J8, in one row of eight sockets. You can use any analog input SCC module in a single-stage analog input configuration. In addition, it contains two analog output sockets, J17 and J18, for outputting up to two channels of data with the appropriate SCC modules inserted.

The SC-2350 does not support dual-stage configuration or digital signals. You cannot use the SC-2350 carrier with the following modules:

- SCC-DI01
- SCC-DO01
- SCC-RLY01
- SCC-CTR01

Figure 15 shows the locations of SC-2350 carrier components.



1	SCC Socket Reference Designator	5	Serial Number	9	Power LEDs
2	SCC Socket	6	Assembly Number	10	J25
3	SCC Key Slot	7	Screw-Terminal Block	11	J21
4	50-Pin Test Header	8	J24		

Figure 15. SC-2350 Carrier with TEDS

Step 6. Installing the Modules

When properly oriented, SCC modules plug easily onto the connector block socket. Never force an SCC module into the socket.

To install the SCC modules on the connector block sockets of the SC-2345/2350 carrier, complete the following steps:

1. Remove the cover screws on either side of the top cover with a Number 1 Phillips screwdriver. Open or remove the top cover.
2. If the carrier is equipped with a strain relief module, loosen the strain-relief screws with a Number 2 Phillips screwdriver and slide the signal wires through the strain-relief opening. If you are connecting multiple signals, you may need to remove the top strain-relief bar.
3. Plug the SCC modules onto the appropriate connector block sockets. Refer to the *Device-Specific Information* section of the SCC-*XX* module user guides for the socket requirements of the SCC modules.

Analog Input SCC Modules

Analog input sockets are arranged in aligned pairs so that sockets J(*X*+1) and J(*X*+9) form a pair, for all *X* 0 to 7. The SC-2345 routes analog input signals to the DAQ device channels AI (*X*) and AI (*X*+8). For example, if you plug an SCC-A10 voltage attenuator module into socket J4, the signal on one channel is routed to AI 3 and the signal on the other channel is routed to AI 11. Refer to the SCC user guide to confirm signal names.

Right-click the device name in MAX to see the device pin assignments (pinouts) are in the *NI-DAQmx Device Terminals Help* in the *Measurement & Automation Explorer Help*. Also pinouts for NI-DAQmx, are accessible from **Help»HelpTopics»NI-DAQmx»MAX Help for NI-DAQmx**.

For specific descriptions of the pin assignments, refer to your device documentation at `ni.com/manuals` or on the NI-DAQmx CD that contains the device documentation.

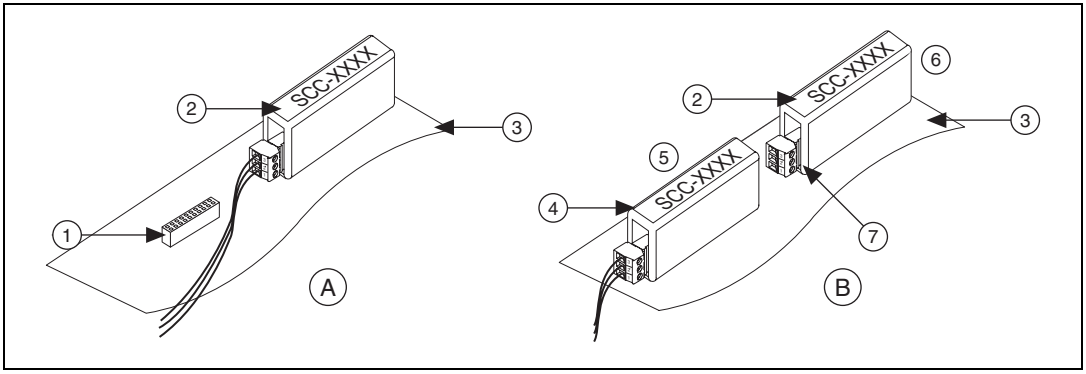
Single-Stage Analog Input Conditioning

For single-stage analog input conditioning, plug the SCC module into any socket J1 to J8 and connect the I/O signals to it. In a single-stage analog input SCC configuration, you connect the external signal to an SCC module that conditions the signal and passes it to the DAQ device.

Dual-Stage Analog Input Conditioning

For dual-stage analog input conditioning, plug the first-stage SCC module into any socket J(*X*+9) and plug the second-stage SCC module into the corresponding paired socket, J(*X*+1). Connect the input signals to the first-stage SCC module, and none to the second-stage SCC. The SC-2345 connects the output signals of the first-stage SCC modules to the inputs of the second-stage SCC modules and routes the outputs of the second-stage modules to DAQ device channels AI (*X*) and AI (*X*+8). An example of dual-stage conditioning is a voltage attenuator SCC module followed by a lowpass filter SCC module. Figure 16 shows how to install analog input modules on the SC-2345 carrier.

Sometimes, you can cascade two analog input SCC modules together on a single analog input channel to form a dual-stage configuration. You can use sockets J9 to J16 as the first stage of a dual-stage analog input configuration. Use sockets J1 to J8 for the second stage of a dual-stage analog input configuration.



A	Single-Stage Analog Input	4	Analog SCC Plugged into J9
B	Dual-Stage Analog Input	5	First Stage
1	J9 Connector Block (SCC Module Not Installed)	6	Second Stage
2	Analog SCC Plugged into J1	7	Do Not Connect Any Signals to the Second-Stage SCC
3	SC-2345 Carrier		

Figure 16. Single- and Dual-Stage Analog Input SCC Configuration for SC-2345 Connector Block Socket

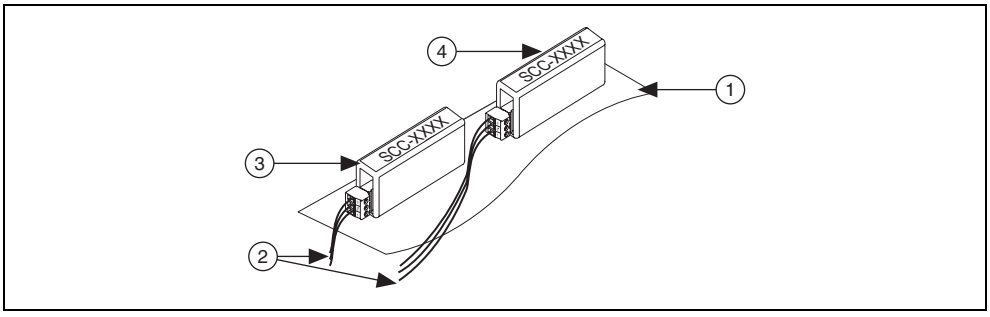
Table 3 shows all the analog input SCC modules that you can configure on the SC-2345 carrier and whether the modules support single-stage, dual-stage, or both configurations.

Table 3. SCC Modules and Dual-Stage Compatibility

SCC Modules	Single-Stage Analog Input (J1–J8)	First Stage of Dual-Stage Analog Input (J9–J16)	Second Stage of Dual-Stage Analog Input (J1–J8)
SCC-AI*XX*	Yes	Yes	No
SCC-A10	Yes	Yes	No
SCC-RTD01	Yes	Yes	No
SCC-CI20	Yes	Yes	No
SCC-ACC01	Yes	Yes	No
SCC-TC0*X*	Yes	Yes	No
SCC-FV01	Yes	No	Yes
SCC-LP*XX*	Yes	Yes	Yes
SCC-FT01	Yes	Yes	Yes
SCC-SG*XX*	Yes	Yes	No

Digital SCC Modules

Sockets J9 to J16 work for digital SCC modules as well as for analog inputs. Plug a digital SCC module into any socket J(*X*+9), where *X* is 0 to 7, and connect the P0. signal to the module. The SC-2345 routes the P0. signal to the DAQ device channel P0.(*X*). Figure 17 illustrates a digital module with an analog input module.



1	SC-2345 Carrier	3	Digital SCC Plugged into J9
2	Input Signals	4	Analog SCC Plugged into J1

Figure 17. Single-Stage Analog Input and DIO SCC Configuration for SC-2345 Connector Block Socket

Analog Output SCC Modules

You can plug analog output SCC modules into the SC-2345 using sockets J17 and J18. Each socket connects to both analog output channels of the DAQ device although each is identified on the SC-2345 as being for either channel 0 or 1. These designations indicate the primary analog output channel each socket uses. Analog output channel 0 is the primary channel for socket J17. Analog output channel 1 is the primary channel for socket J18.

GPCTR SCC Modules

Plug the SCC-CTR01 general purpose counter timer module into socket J19 or J20 of the SC-2345. Socket J19 connects to the DAQ device general-purpose counter timer channel 0. Socket J20 connects to general purpose counter timer channel 1.

Step 7. Configuring the SC-2345/2350

You can use the SC-2350 only with NI-DAQmx 7.2 or later; you can use the SC-2345 with NI-DAQmx 7.0 or later.

1. Double-click the **Measurement & Automation** icon on the desktop to open MAX.
2. Open **Devices and Interfaces** then expand **NI-DAQmx Devices.** If the device does not automatically appear, press <F5> to refresh the view in MAX. If the device is still not recognized, refer to `ni.com/support/install`.
3. Right-click **Devices and Interfaces** and select **Create New** as shown in Figure 18.

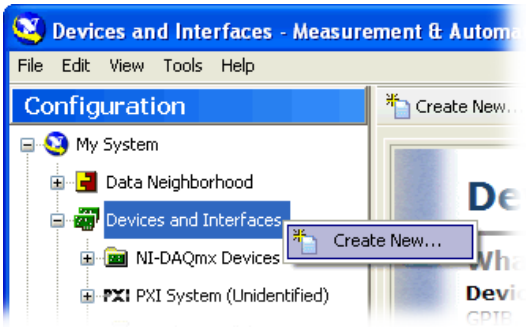


Figure 18. Create New in Devices and Interfaces

4. Select either the SC-2345 or SC-2350 from the Create New window.
5. Select the carrier under **NI-DAQmx Device»NI-DAQmx SCC Connector Block**. The configuration window opens as shown in Figures 19 and 20.

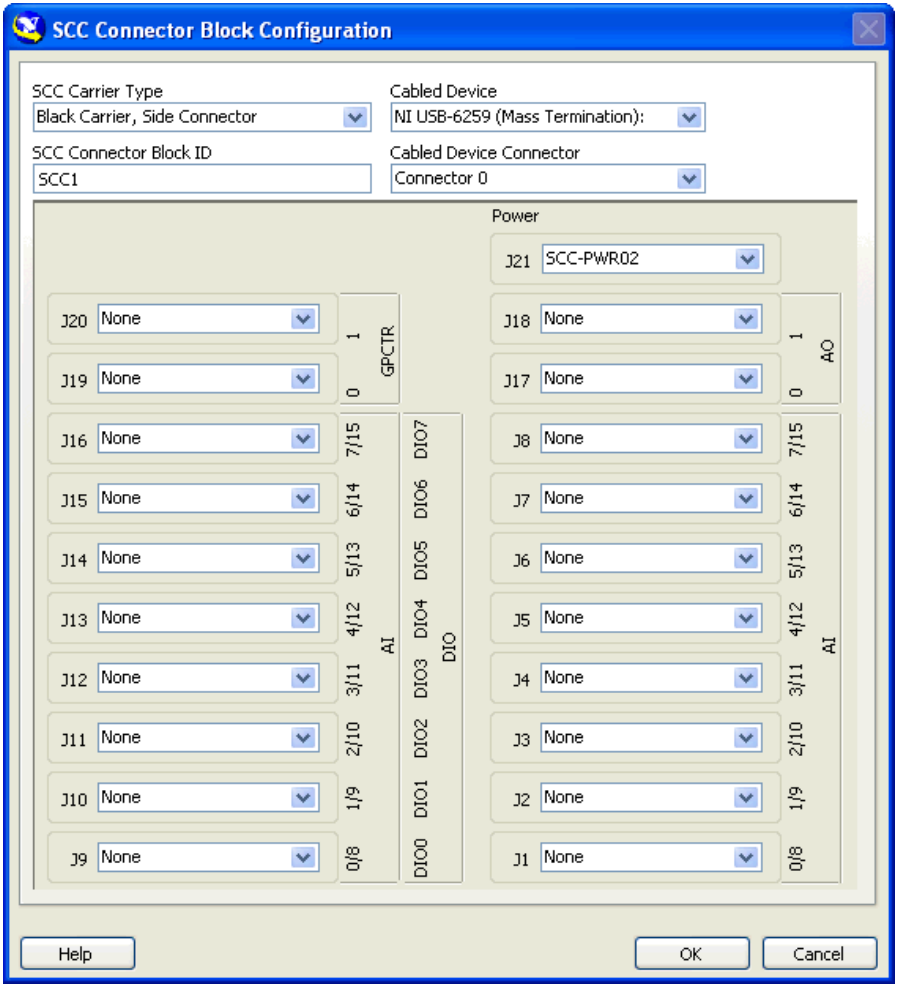


Figure 19. SC-2345 Connector Block Configuration Window

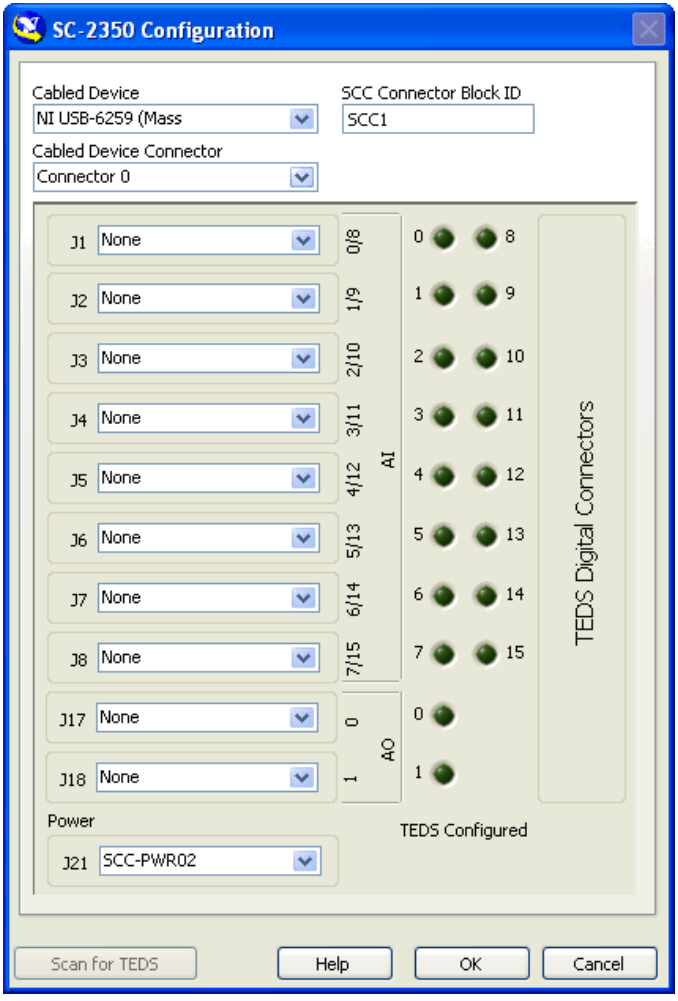


Figure 20. SC-2350 Configuration Window

Note Configuring the SCC system using MAX automatically sets the analog input mode of the DAQ device to NRSE.

Step 8. Configuring the SCC Modules

Complete the following steps to configure the SCC modules:

1. Specify the **SCC Carrier Type**. The location of the SCC sockets change depending on the SCC carrier type.
2. Select the **DAQ Device** that is connected to the SC-2345/2350 carrier.
3. Type the **SCC Connector Block ID**. The default value is SCC1.
4. If the cabled DAQ device is an M Series device with two connectors, select the **Cabled Device Connector**.

5. In the J21 drop-down list next to Power, select the correct SC-2345/2350 power configuration. The SC-2345/2350 shielded carrier has one of the following power modules factory-installed in socket J21:
   - SCC-PWR01—5 VDC from the DAQ device or an external supply
   - SCC-PWR02—Universal AC external supply
   - SCC-PWR03—7 to 42 VDC external supply module (power supply not included)

   For more information about how to select the power option for the SCC 2345/2350 carrier module, refer to the *SC-2345/2350 Carrier User Manual*.
6. For each SCC module physically installed in the SC-2345/2350 carrier, add a corresponding entry in the SC-2345/2350 configuration window. To add the SCC, click the **Socket** drop-down list and select the correct module.
7. If the module name does not appear in the list, either the module is not allowed in that location or you do not have the current version of NI-DAQ. If you do not have the current version of NI-DAQ, download it from `ni.com/downloads`.
8. Click **OK** after completing all SCC entries to finish the configuration process.

For more information, refer to the *SC-2345/2350 Carrier User Manual*.

SC-2350: Configuring TEDS

If you are using a TEDS sensor, complete the following steps to configure the TEDS sensor in MAX:

1. If MAX is not already open, double-click the MAX icon.
2. Under NI-DAQmx Devices, right-click **SC-2350** and select **Properties**. The SC-2350 Configuration window opens. Leave the DAQ Device, the SCC Connector Block ID, and where applicable, the Cabled Device Connector as the defaults.
3. Select the SCC module from the appropriate drop-down list (J*x*).
4. The LED to the right of the module should appear bright green if the sensor is connected. If the LED is not bright green, connect the sensor now and click **Scan for TEDS**. Click **OK**.
5. Expand the SC-2350 and the module connected to the TEDS sensor.
6. Click the TEDS sensor, and the TEDS sensor specifications appear in the right pane of the window.
7. Verify that the TEDS data has imported correctly. If your data has not imported correctly, repeat steps 2 through 7.

Step 9. Taking an NI-DAQmx Measurement

This step applies only if you are programming the device using NI-DAQ or NI application software. Refer to the *Take an NI-DAQmx Measurement* section in the *DAQ Getting Started Guide*.

When using the DAQ Assistant to create a new task, refer to Table 4 for the measurement types in NI-DAQmx and how they correspond to the SCC modules.

For additional information about SCC-*XX* module-specific channel/task settings, refer to the individual SCC-*XX* module user guide.

Table 4. SCC Module and Corresponding NI-DAQmx Measurement Type

SCC Module	Recommended NI-DAQmx Measurement Type	Recommended Parameter Settings[1]
SCC-ACC01	**Analog Input»Accelerometer**	Current Excitation Value = 4 mA, Excitation Source = Internal Sensitivity = #
SCC-AI01	**Analog Input»Voltage**	Max/Min = ±42 V
SCC-AI02	**Analog Input»Voltage**	Max/Min = ±20 V
SCC-AI03	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-AI04	**Analog Input»Voltage**	Max/Min = ±5 V
SCC-AI05	**Analog Input»Voltage**	Max/Min = ±1 V
SCC-AI06	**Analog Input»Voltage**	Max/Min = ±100 mV
SCC-AI07	**Analog Input»Voltage**	Max/Min = ±50 mV
SCC-AI13	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-AI14	**Analog Input»Voltage**	Max/Min = ±5 V
SCC-A10	**Analog Input»Voltage**	Max/Min = ±60 V
SCC-AO10	**Analog Output»Voltage**	Max/Min = ±10 V
SCC-CI20	**Analog Input»Current**	Max = 20 mA, Min = 0 mA
SCC-CO20	**Analog Output»Current**	Max = 20 mA, Min = 0 mA
SCC-CTR01	**Counter Input or Counter Output**	Based on your application
SCC-DI01	**Digital Input**	Use default
SCC-DO01	**Digital Output**	Use default
SCC-FT01	**Any measurement type**	Based on your application
SCC-FV01	**Analog Input»Frequency**	Use default
SCC-LP01	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-LP02	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-LP03	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-LP04	**Analog Input»Voltage**	Max/Min = ±10 V
SCC-RLY01	**Digital Output**	Use default
SCC-RTD01	**Analog Input»Temperature»RTD**	Current Excitation Value = 1 mA Excitation Source = Internal RTD Type = # R_0 = # Resistance Configuration = #

Table 4. SCC Module and Corresponding NI-DAQmx Measurement Type (Continued)

SCC Module	Recommended NI-DAQmx Measurement Type	Recommended Parameter Settings[1]
SCC-SG01	**Analog Input»Strain Gage**	Strain Configuration = Quarter Bridge I Gage Resistance = 120 Ω Gage Factor = #
SCC-SG02	**Analog Input»Strain Gage**	Strain Configuration = Quarter Bridge I Gage Resistance = 350 Ω Gage Factor = #
SCC-SG03	**Analog Input»Strain Gage**	Strain Configuration = Half Bridge I Gage Resistance = # Gage Factor = # Poisson Ratio = #
SCC-SG04	**Analog Input»Strain Gage**	Strain Configuration = Full Bridge I Gage Resistance = # Gage Factor = #
	Analog Input»Custom Voltage with Excitation	Max/Min = ±100 mV Bridge Type = Full Bridge Excitation Source = Internal Excitation Value = 2.5 V
SCC-SG24	**Analog Input»Strain Gage**	Strain Configuration = Full Bridge I Excitation Value = 10 V Gage Resistance = # Gage Factor = #
	Analog Input»Custom Voltage with Excitation	Max/Min = ±100 mV Bridge Type = Full Bridge Excitation Source = Internal Excitation Value = 10 V
SCC-SG11	**Digital Output**	Use default
SCC-TC01	**Analog Input»Temperature» Thermocouple**	CJC Source = Built In Thermocouple Type = #
SCC-TC02	**Analog Input»Temperature» Thermocouple**	CJC Source = Built In Thermocouple Type = #

Note: # value is based on sensor specification.

[1] Use default value for parameters not specified in the table.

Using the Device in an Application

Refer to the *DAQ Getting Started Guide* for application information.

Troubleshooting

Use the following resources if you have problems installing your DAQ hardware and/or software:

- For troubleshooting instructions, refer to the Hardware Installation/Configuration Troubleshooter at `ni.com/support/install`.
- Refer to `ni.com/kb` for documents about troubleshooting common installation and programming problems and for answering frequently asked questions about NI products.
- If you think you have damaged your device and need to return your National Instruments hardware for repair or device calibration, refer to `ni.com/info` and enter the info code `rdsenn` to learn how to begin the Return Merchandise Authorization (RMA) process.

Worldwide Technical Support

For additional support, refer to `ni.com/support or ni.com/zone`. For further support information for signal conditioning products, refer to the *Technical Support Information* document packaged with your device.

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